

JLCA Corner (LCA Society of Japan)

AIST Workshop 'Gateway to Life Cycle Impact Assessment for APEC Member Economies'

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Introduction

The AIST workshop 'Gateway to Life Cycle Impact Assessment for APEC Member Economies' was held on November 7, 2002, in the International Conference Center 'Epochal', Tsukuba, Japan, organized and sponsored by Research Center for Life Cycle Assessment, National Institute of Advanced Industrial Science and Technology (AIST). This workshop was the third in a series of workshops on LCA in APEC (Asia Pacific Economic Cooperation) economies supported by AIST. The first two workshops focussed on general LCA promotion and identifying inventory data development within these economies.

The aim of the workshop was to bring APEC members together to report on and discuss the priority environmental issues for different APEC economies, and to examine how the state of the art impact assessment models relate to these priorities. The APEC region contains many unique environments that are substantially different from the European environment where many of the current impact assessment methods and research have been developed.

The LCA experts from 19 countries in APEC and related countries participated in the workshop. The countries were Australia, Brazil, Canada, Chile, China, Chinese Taipei, Egypt, India, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Philippines, Singapore, Thailand and USA. In addition, key LCIA specialists from Germany, Switzerland and The Netherlands, attended the workshop to offer input regarding possible future directions in LCIA. The total participants were 84 including Japanese participants.

The workshop was held in cooperation with the UNEP/SETAC Life Cycle Initiative which was launched in April 2002. In this paper, LCA and LCIA activities in APEC region and their future tasks are briefly summarized.

1 Overview of LCA Activity and LCIA Activity in APEC Member Economies

In the former workshops, the development in LCA across APEC countries was shown, which begins with countries holding workshops and general promotion of LCA, progressing to case study projects, LCI database development, uptake of LCA by industry, and finally outreach of LCA activities across the region.

Among the participating countries, the concept of LCA has been promoted through seminars and workshops and LCA case studies, which almost all the countries have undertaken in some form. In February 2002 the first International Conference on LCA was held in India, showing remarkable progress on LCA in this region. The development of the case studies has largely been made possible through the existence of a society of the experts for LCA. More than half of the participated countries have established LCA Fora or Societies. In some countries, the roles of the society are mainly for developing input to ISO TC207. The development of LCI background data base is indispensable for promoting LCA, however only few countries have established such databases. Japan, Korea, Chinese Taipei, Australia and North American countries have database projects that are mainly sponsored by their governments. Over the last 4 years, through several projects supported by JEMAI¹ and

APO², a number of regional economies such as Thailand, Indonesia, Singapore and Malaysia have progressed from the first stage of LCA development and are now looking towards inventory database development.

To determine current activity in impact assessment a questionnaire was circulated to the participants of the workshop. The aim of the survey was to identify the indicators currently being used in impact models, and to compare them to the major environmental and social issues in these economies. Of the 19 countries that responded, 14 countries, namely Japan, Mexico, Singapore, Philippines, P.R. China, Chile, Korea, USA, Chinese Taipei, Canada, India, Australia, Malaysia and New Zealand, have LCIA projects underway. Eight countries as are Japan, Philippines, P.R. China, Korea, USA, Chinese Taipei, Canada, and New Zealand, have projects supported by national governments. Japan Mexico, Singapore, P.R. China, Korea, India, Australia, and New Zealand (eight countries) have substantial non-government projects, and 10 countries, namely Japan, P.R. China, Chile, Korea, USA, Chinese Taipei, Canada, India, Australia, and New Zealand, have sector-specific projects.

Global warming, human toxicology, eutrophication and ozone depletion are the most common categories included in impact models developed. Water use, eco-toxicology impacts, photochemical smog and acidification are also common inclusions in such impact models. The land-use, biodiversity, life support, soil quality and water quality are the least included categories in impact models being developed. However, there is substantial interest in these indicators as many survey respondents indicated that they were examining or considering these as impact categories. Respondents were asked how different environmental issues rated in their country. The big issues most commonly identified were smog, surface water quality, and efficient use of resources, closely followed by water scarcity, stratospheric ozone and toxic substances. Behind these came biodiversity and global warming. While the sample size of the questionnaire is too small to draw firm conclusions, the results indicate that impact models are being driven more by available data and less by high priority environmental issues.

3 Future Tasks

There is some activity in Life Cycle Impact Assessment across countries in the APEC region, although many are still in the early stages of LCA development. Environmental impacts in the region vary from country to country (and within countries) but it is clear that land and water issues are generally important, but are currently poorly modelled in LCA. There is some convergence between endpoint and midpoint impact modelling and there is potential to adapt much of what has been done in Europe for countries in the APEC region, possibly based on environmental 'archetypes' rather than strict geographical areas.

Resources are needed to further this work, however there is a substantial network of people willing to assist and promote the development of an LCIA model(s) for the region.

The more detailed report will be published in the website of Research Center for Life Cycle Assessment, AIST (<http://unit.aist.go.jp/lca-center/English/home.htm>) and Centre for Design (<http://www.cfd.rmit.edu.au>)

¹ Japan Environmental Management Association for Industry

² Asian Productivity Organisation